

CLAIMS

1. A quartz crystal substrate used to form a phase transition type twin in a quartz crystal by the hot pressing method, this quartz crystal substrate being characterized in that this substrate has, on one side, a step structure in which protruding parts that serve as pressure receiving surfaces for receiving the pressure of the pressing apparatus are formed, and this step structure is formed by a combination of a lithographic exposure technique and dry etching.
2. A pressing apparatus used to form a phase transition type twin in a quartz crystal by the hot pressing method, this pressing apparatus being characterized in that one of the pressing surfaces is held on the main body of the pressing apparatus via a swinging mechanism.
3. A pressing apparatus used to form a phase transition type twin in a quartz crystal by the hot pressing method, this pressing apparatus being characterized in that the apparatus has heater blocks, and pressing members that are constructed from a different material from the material of these heater blocks are attached to these heater blocks.
4. The pressing apparatus according to Claim 3, which is characterized in that the portions of the surface of one of the pressing members that contact the portions

of the quartz crystal that desirably undergo twinning is worked so that these portions have a protruding shape that protrudes beyond the other portions.

5. A pressing apparatus used to form a phase transition type twin in a quartz crystal by the hot pressing method, this pressing apparatus being characterized in that the apparatus has a heating mechanism in the pressing blocks, and this heating mechanism has a plurality of heaters.

6. A pressing apparatus used to form a phase transition type twin in a quartz crystal by the hot pressing method, this pressing apparatus being characterized in that air pressure alone is used to generate the pressing force.